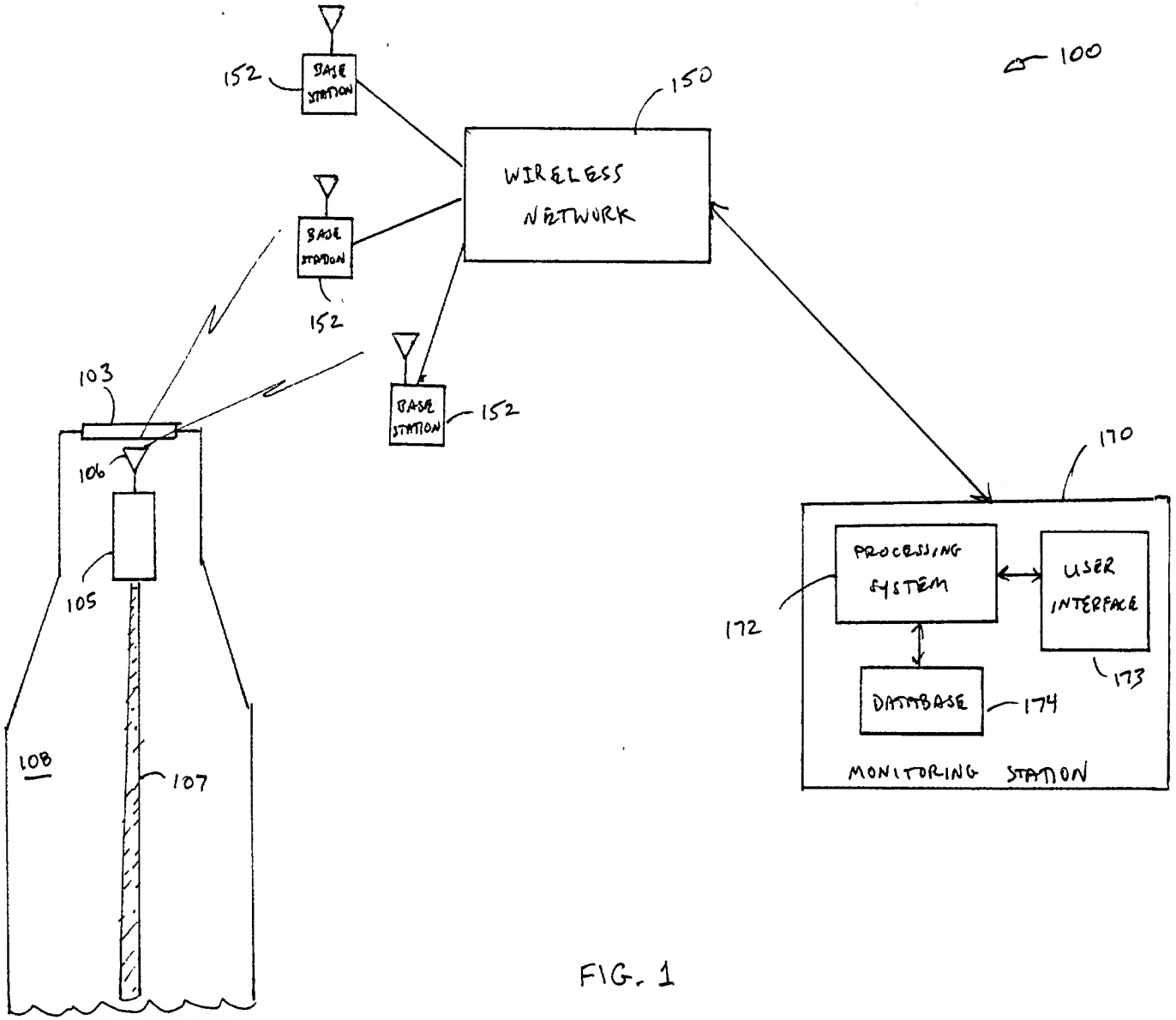

FIG. 1

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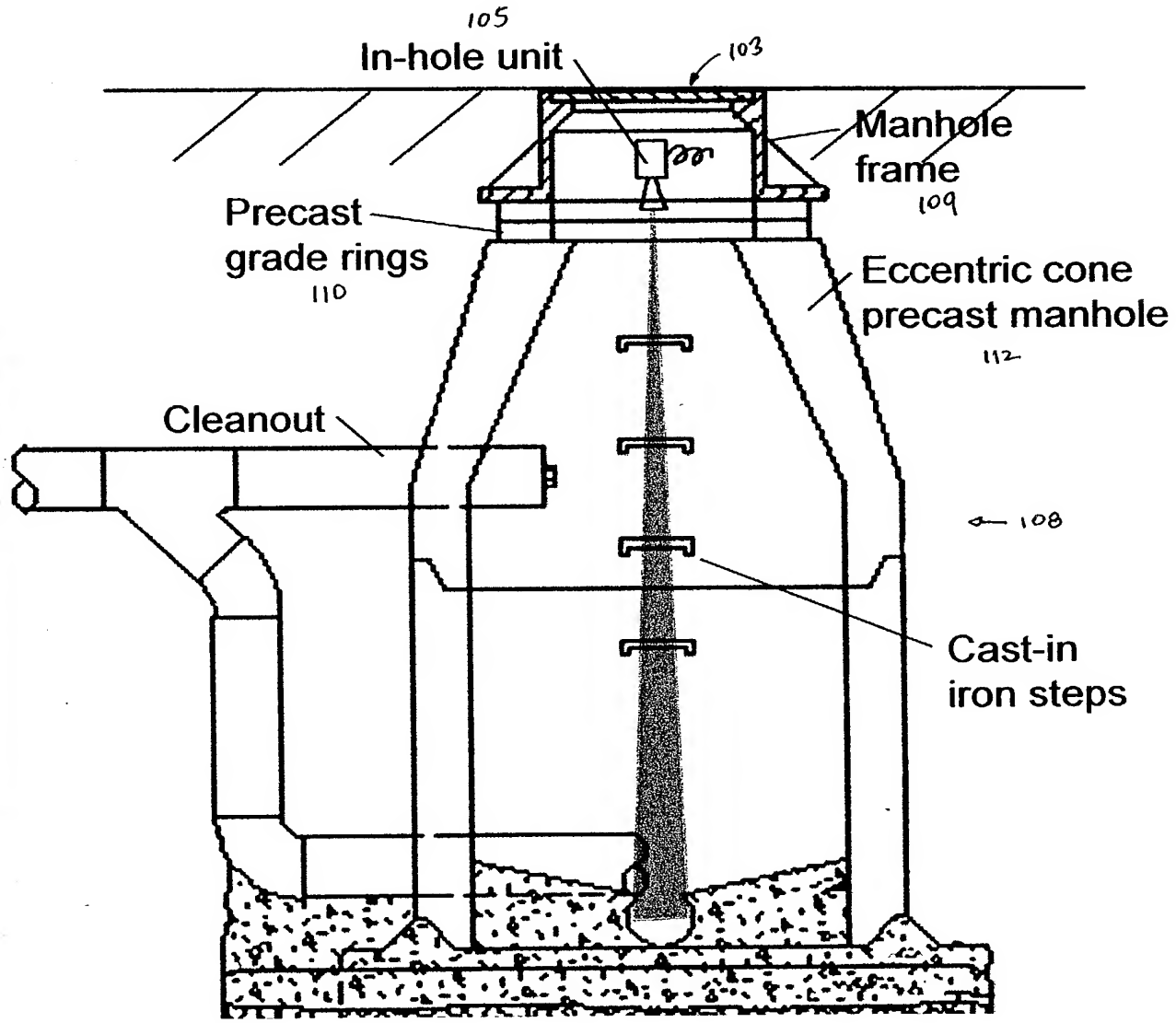

105
In-hole unit
103
Manhole frame
109
Precast grade rings
110
Eccentric cone precast manhole
112
Cleanout
108
Cast-in iron steps

FIG. 2

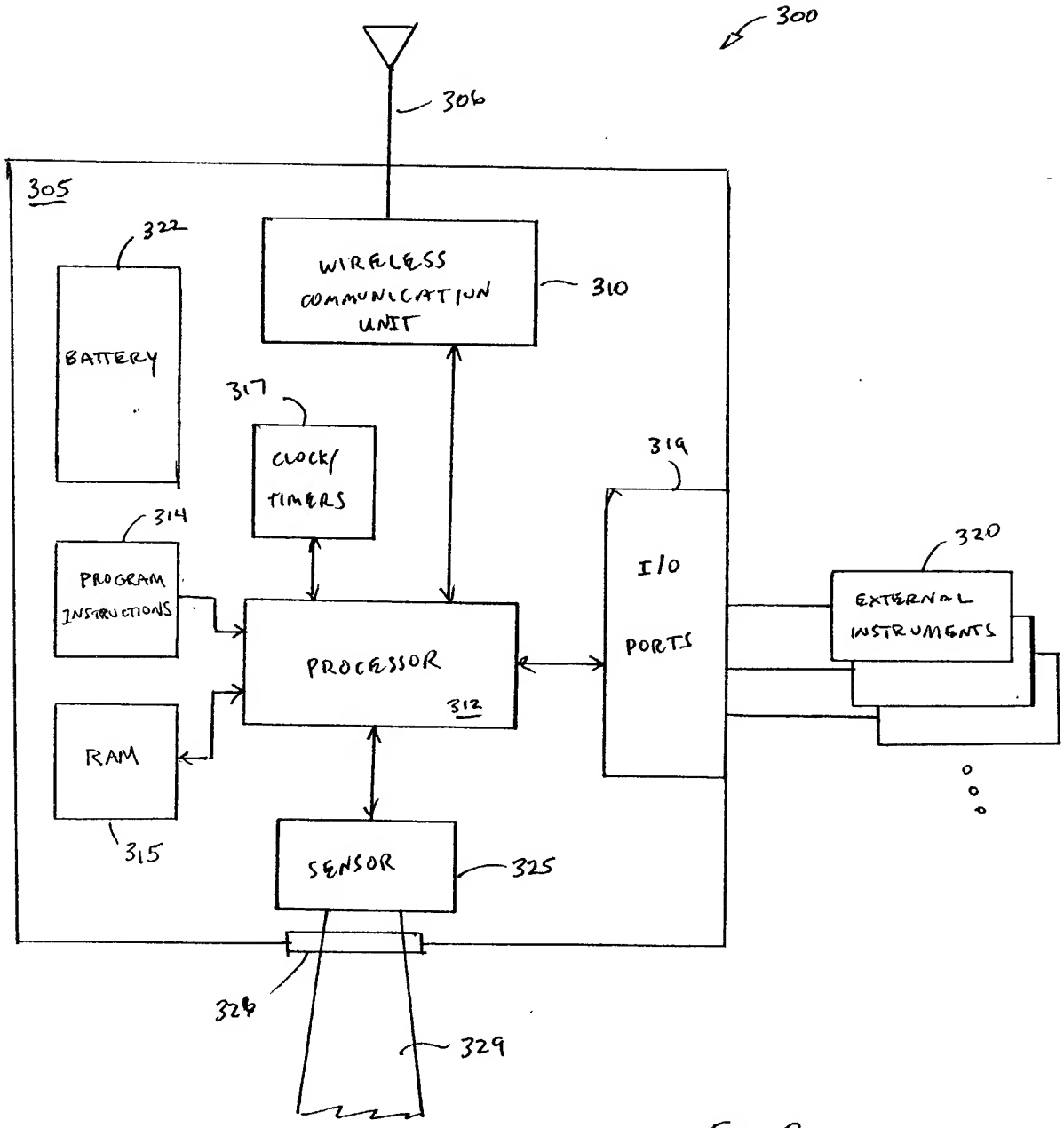

300
306
305
322
BATTERY
WIRELESS COMMUNICATION UNIT
310
317
CLOCK/ TIMERS
319
I/O PORTS
320
EXTERNAL INSTRUMENTS
314
PROGRAM INSTRUCTIONS
PROCESSOR
312
RAM
315
SENSOR
325
326
329

FIG. 3

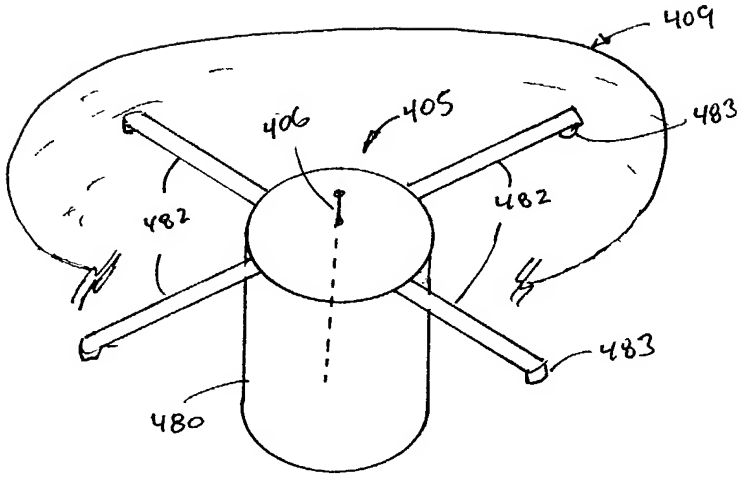


FIG. 4A

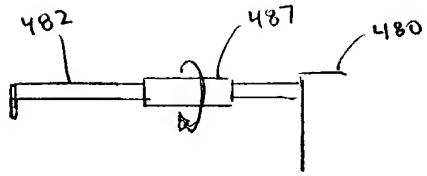
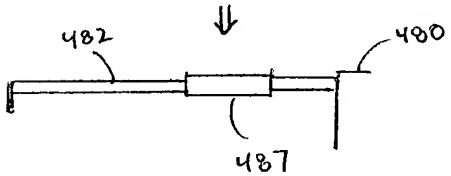


FIG. 4B



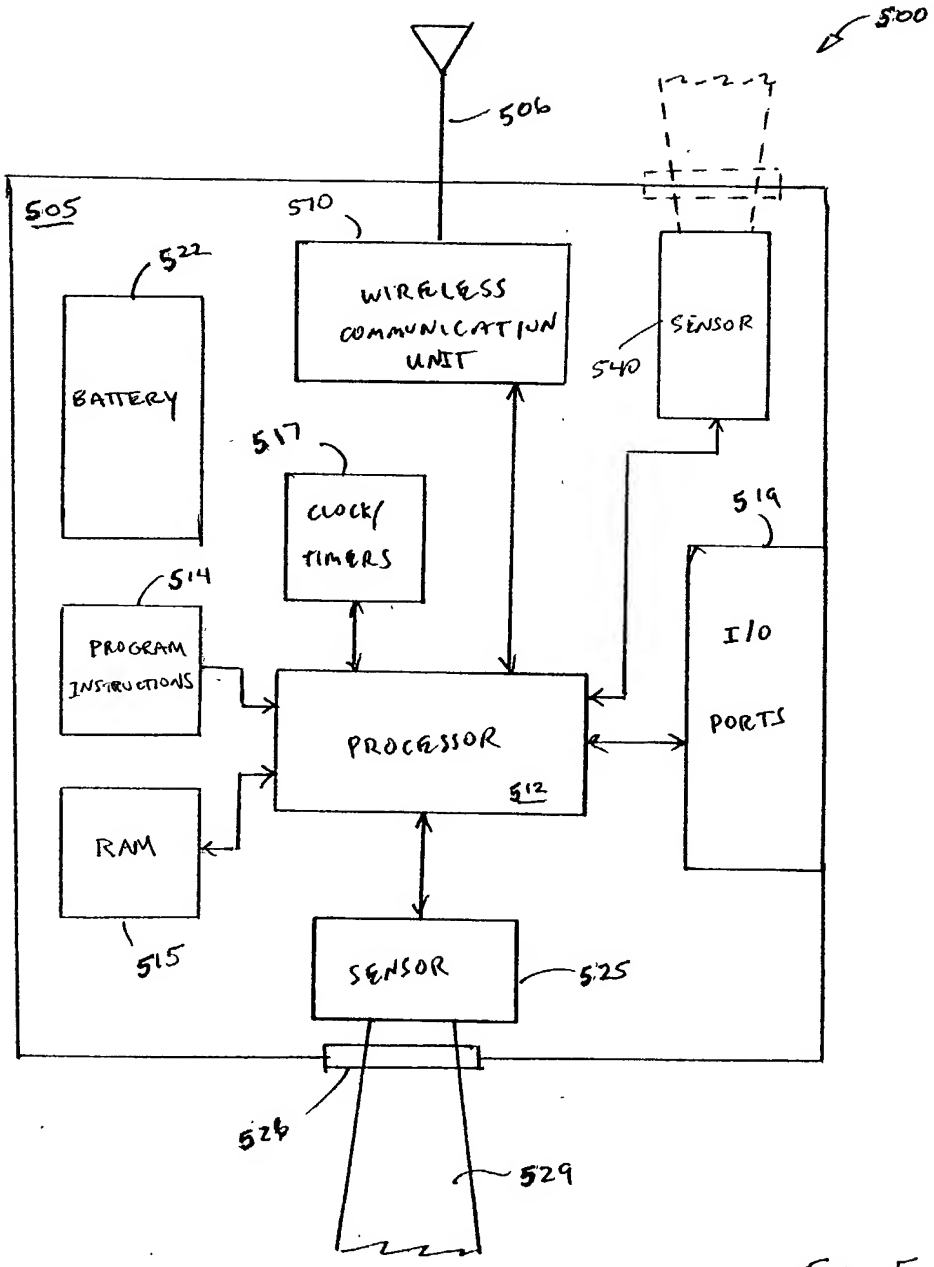

500
506
505
510
522
WIRELESS COMMUNICATION UNIT
BATTERY
SENSOR
540
517
CLOCK/ TIMERS
519
514
PROGRAM INSTRUCTIONS
I/O PORTS
PROCESSOR
512
RAM
515
SENSOR
525
528
529

FIG. 5

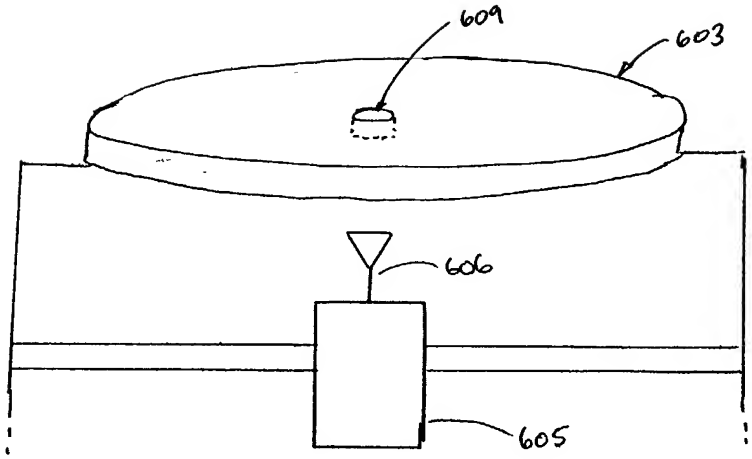


FIG. 6A

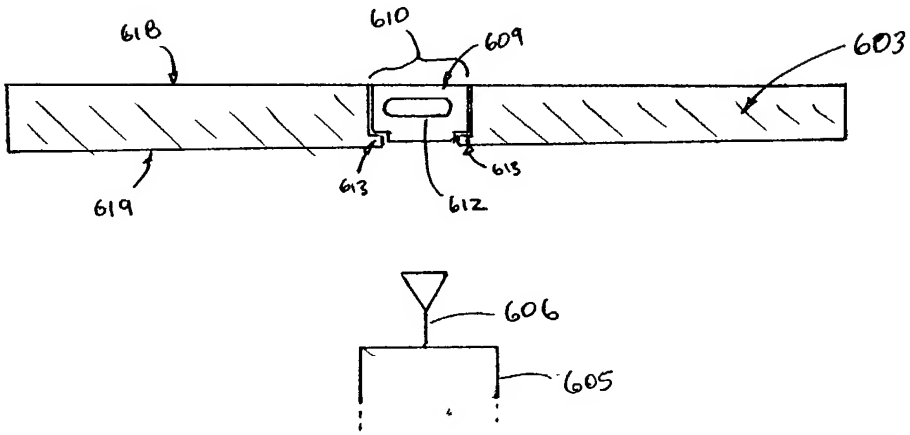


FIG. 6B

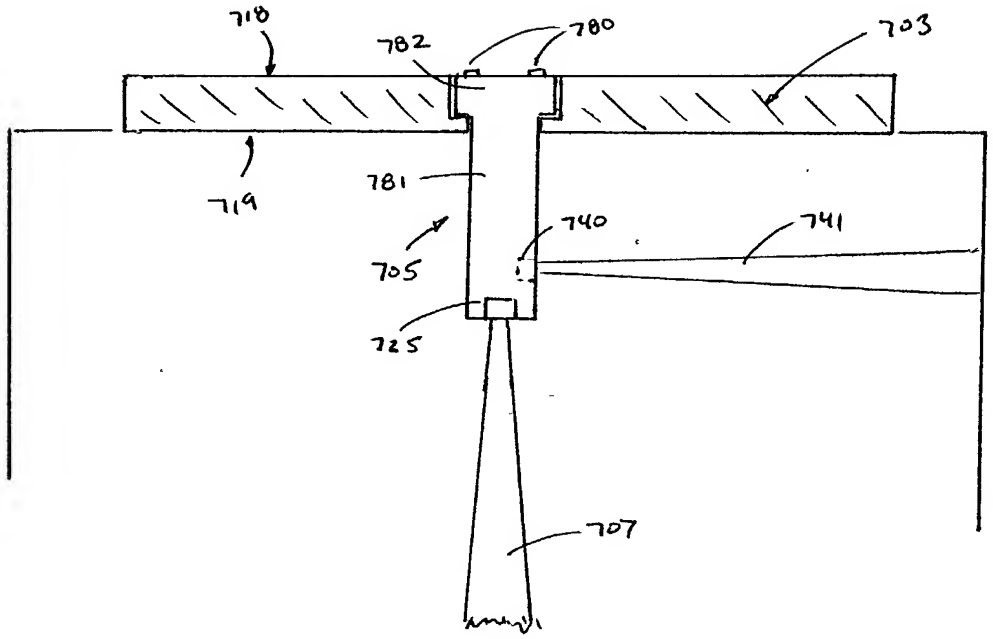


FIG. 7

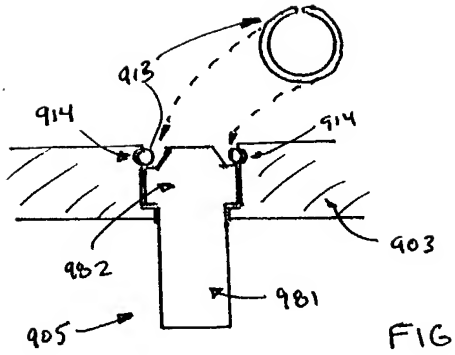


FIG. 9

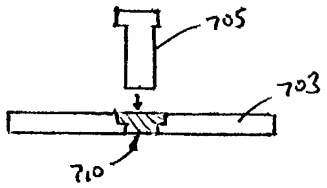


FIG. 8